

IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF CALIFORNIA

UNIRAM TECHNOLOGY, INC,

No C-04-1268 VRW

Plaintiff,

ORDER

v

TAIWAN SEMICONDUCTOR
MANUFACTURING COMPANY

Defendant.

_____/

UniRAM Technology, Inc ("UniRAM") filed suit on March 31, 2004, alleging, inter alia, that Taiwan Semiconductor Manufacturing Company ("TSMC") infringes UniRAM's United States Patent no 6,108,229 (the "'229 patent"), which relates to dynamic random access memory ("DRAM") and methods for the manufacture thereof. Doc #16 (SAC). TSMC denies the allegations and, as an affirmative defense, asserts that the '229 patent is unenforceable due to inequitable conduct. Doc #27.

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1 TSMC has moved for summary judgment that the '229 patent
2 is unenforceable due to inequitable conduct. Doc #271. UniRAM has
3 moved to strike portions of TSMC's reply brief or, in the
4 alternative, to submit a surreply brief. Doc #319. For reasons
5 discussed below, the court DENIES TSMC's motion for summary
6 judgment and DENIES UniRAM's motion to strike.

7
8 I

9 This motion concerns the '229 patent, which issued on
10 August 22, 2000, to Dr Jeng-Jye Shau ("Shau"). Doc #272, Ex C
11 ('229 patent). The patent discloses a DRAM cell array that is
12 manufactured by processes typically used to produce logic devices
13 such as CPUs and microprocessors. See id. The '229 patent is a
14 continuation-in-part both of application no 08/805,290 (the "'290
15 application") and application no 08/653,620 (the "'620
16 application"). Id at TSMC 345. In patent parlance, the '290
17 application is the "grandparent" and the '620 application is the
18 "parent" of the '229 patent.

19 The research leading up to the '229 patent began in May
20 1996, when Shau started work on a tape-out file corresponding to
21 the DRAM architecture he was developing. Doc #297 (Shau decl), ¶
22 7. Shau also began simulating the performance of his architecture
23 using software-based tools that model the performance
24 characteristics of integrated circuits before they are
25 manufactured. See id. Using these tools, Shau asserts he
26 established that, employing the design rules of 0.6 μm technology,
27 his DRAM design had an access time of four nanoseconds. Id.

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1 On May 24, 1996, after obtaining these results from the
2 simulation, Shau filed the '620 patent application (the grandparent
3 patent). Doc #271, Ex A ('620 application). In a section
4 summarizing the invention, Shau stated that his "results show that
5 a memory of the present invention is faster than an SRAM of the
6 same memory capacity." Id, Ex A at TSMC 36. More specifically, in
7 describing the invention, Shau stated the following:

8 A memory device of the present invention is under
9 production. Using 0.6 micron technology to build a
10 memory array containing one million memory cells,
11 we are able to achieve 4 ns access time, which is
more than 10 times faster then [sic] existing
memories [sic] devices of the same storage
capacity.

12 Id, Ex A at TSMC 48.

13 Later in the summer of 1996, Shau completed his initial
14 tape-out and contracted with a fabrication service called MOSIS, a
15 low cost semiconductor manufacturer commonly used by academics for
16 non-commercial research efforts. Doc #297, ¶ 12. Because MOSIS
17 could only support small test chips, Shau was unable to verify his
18 DRAM architecture on a full size commercial chip. Id, ¶ 13. As a
19 result, Shau presented his technology to TSMC and secured
20 permission to submit his tape-out to one of TSMC's fabrication
21 facilities. Id, ¶ 14. Shau did so in late 1996, submitting a
22 tape-out for a product that was configured as an industry standard
23 commercial memory product - i e, a CacheRAM design. Id, ¶¶ 14-15.
24 In early 1997, TSMC manufactured a prototype for Shau using his
25 tape-out. Id, ¶ 16. Although the first prototype had errors, Shau
26 asserts he was able to "bypass those errors for purposes of
27 establishing that [he] could read and write data to the memory
28 cells in a memory array." Id, ¶ 17.

Upon fabrication of the prototype, Shau filed the '290 patent application (the parent patent). Doc #272, Ex B ('290 application). In this application, Shau stated the following:

Id., Ex B at TSMC 220.

II

1 proof on an issue, the party's showing must be sufficient for the
2 court to hold that no reasonable trier of fact could find other
3 than for the moving party. Calderone v United States, 799 F2d 254,
4 258-59 (6th Cir 1986). Summary judgment is granted only if the
5 moving party is entitled to judgment as a matter of law.

6 The nonmoving party may not simply rely on the pleadings,
7 however, but must produce significant probative evidence supporting
8 its claim that a genuine issue of material fact exists. TW Elec
9 Serv v Pacific Elec Contractors Ass'n, 809 F2d 626, 630 (9th Cir
10 1987). The evidence presented by the nonmoving party "is to be
11 believed, and all justifiable inferences are to be drawn in his
12 favor." Anderson, 477 US at 255. "[T]he judge's function is not
13 himself to weigh the evidence and determine the truth of the matter
14 but to determine whether there is a genuine issue for trial." Id
15 at 249.

16 17 III

18 A party seeking to have a patent declared unenforceable
19 has a heavy burden to meet, Hoffmann-La Roche, Inc v Promega Corp,
20 323 F3d 1354, 1359 (Fed Cir 2003), especially within the posture of
21 a summary judgment motion. As a threshold matter, inequitable
22 conduct requires "misrepresentation or omission of a material fact,
23 together with an intent to deceive the PTO." Hoffmann-La Roche,
24 323 F3d at 1359. Both materiality and intent must be demonstrated
25 by clear and convincing evidence. Manville Sales Corp v Paramount
26 Sys, Inc, 917 F2d 544, 552, 16 (Fed Cir 1990). Additionally,
27 because the allegations in the present action concern statements in
28 grandparent and parent applications, TSMC must prove an "immediate

1 and necessary relation" between the inequitable conduct in the
2 earlier patents and the enforcement of the descendent patent.
3 Hoffmann-La Roche, Inc v Promega Corp, 319 F Supp 2d 1011, 1021-26
4 (ND Cal 2004). If the requisite levels of materiality and intent
5 are established, the court must determine whether the equities
6 warrant a conclusion that the patentee has engaged in inequitable
7 conduct. Monsanto Co v Bayer Bioscience N V, 363 F3d 1235, 1239
8 (Fed Cir 2004) (citing Hoffmann-La Roche, 323 F3d at 1359).

9
10 A

11 In asserting misrepresentations in the '620 application
12 (the grandfather patent), TSMC focuses on the following
13 characterization of the invention:

14 A memory device of the present invention is under
15 production. Using 0.6 micron technology to build a
16 memory array containing one million memory cells,
17 we are able to achieve 4 ns access time, which is
more than 10 times faster then [sic] existing
memories [sic] devices of the same storage
capacity.

18 Doc #271, Ex A at TSMC 48.

19 TSMC contends this representation to the patent office in
20 May 1996 grossly overstates the production status of Shau's
21 invention. In support, TSMC points to Shau's deposition, in which
22 Shau testified that he worked at Intel until the end of April 1996
23 and did not start to develop the claimed inventions described in
24 his patent applications before May, when he created his own company
25 (Telesis). Doc #285, Ex A (Shau depo) at 202:5-204:3. Indeed,
26 Shau agreed that he "came up with all the ideas and prepared the
27 entire application and got it on file all within that month's [May]
28 time." Id, Ex A at 203:10-14. In view of this timetable, TSMC

1 contends that Shau could not have generated a "product"; nor could
 2 the invention have been "under production." Doc #271 at 5. Shau
 3 allegedly confirmed that his invention was not "under production"
 4 in the following deposition testimony:

5 TSMC: * * * As of May 24, 1996, was anyone producing
 6 chips according to the ideas of the patent
 application?

* * *

7 Shau: I think to the best of my knowledge, no one
 8 did that.

* * *

9 TSMC: When you say "anybody ever did that," ever
 10 produced chips according to the May 24, 1996,
 patent application?

11 Shau: Before that day, I don't know anyone.

12 Doc #285, Ex A at 210:5-10, 210:24-211:2.

13 UniRAM asserts that TSMC generates inconsistency in
 14 Shau's patent application and deposition testimony by
 15 inappropriately assuming that the term "under production" is
 16 synonymous with the manufacture of "chips." Doc #295 at 6.
 17 According to UniRAM, the production process for semiconductor chips
 18 falls into two distinct stages: circuit design and circuit
 19 manufacturing. Id. Hence, Shau's memory device was "under
 20 production," despite being at the design and simulation stage. Id.
 21 In support of this broader construal of the term "under
 22 production," UniRAM submits the declaration of Dr Carl Sechen, a
 23 professor of electrical engineering at the University of Texas at
 24 Dallas. Doc #296. Sechen asserts that a person of ordinary skill
 25 in the art would understand the statement that a "memory device" is
 26 "under production" to include the circuit design process. See id,
 27 ¶¶ 6-9.

28 //

1 With respect to Shau's purported results (4 nanosecond
2 access time), Sechen's declaration states that Shau's simulation-
3 based results were precisely the type of results generated by
4 circuit designers in the course of their work. Id, ¶¶ 8-9.
5 Because fabrication is so costly, the integrated circuit design
6 industry relies extensively on these simulation tools to predict
7 the performance a semiconductor chip will have once fabricated.
8 See id, ¶ 9.

9 To account for Shau's reference to a "product," UniRAM
10 similarly contends that, from a circuit designer's perspective, the
11 term would refer to the design specifications or tape-out, not a
12 fully fabricated semiconductor chip. Doc # 295 at 8. See also Doc
13 #296, ¶ 16 ("From a circuit designer's perspective, the term
14 'product' in the passage 'the bit line structure used in our
15 product' would logically refer to the circuit design or potentially
16 even a tape out.").

17 Turning to the '290 application (the parent patent), TSMC
18 focuses on the following representation to the patent office:

19 Using this memory cell 1400 and a memory
20 architecture disclosed in this invention and in our
21 previous patent application, commercial memory
22 products were manufactured successfully. The major
23 advantage of the logic memory cell 1400 is that it
24 can be manufactured using standard logic
25 technology. The resulting memory product achieved
26 unprecedented high performance.

27 Doc #272, Ex B at TSMC 220.

28 TSMC claims that a "commercial memory product" with
"unprecedented high performance" did not exist at the time of the
'290 application. Doc #305 at 5. UniRAM counters that Shau's
characterization (that his invention had been "manufactured")

1 properly reflects the invention's development status, as actual
2 semiconductor circuits had been fabricated before the filing date
3 of the '290 application. See Doc #297, ¶ 17.

4 In response, TSMC concedes that chips were manufactured,
5 but challenges whether these chips could be characterized as
6 "successful[]" or "unprecedented" in their performance. Doc #305
7 at 5. To undercut Shau's statements to the patent office, TSMC
8 presents to the court a contemporaneous email Shau sent to TSMC,
9 stating that the "first design [was] not worthy of mass production"
10 because he had "failed to make the first silicon fully functional."
11 Doc #285, Ex B.

12 UniRAM counters that Shau's chips were successfully
13 manufactured because Shau was able to bypass the errors mentioned
14 in his email, rendering Shau able to read and write data to the
15 memory cells in his design. Doc #297, ¶ 17. Additionally, the
16 test chip constituted a "commercial memory product," despite not
17 being sold to the public, because it was configured as a commercial
18 design (termed "CacheRAM") and manufactured by a commercial
19 foundry. Id, ¶ 18.

20
21 B

22 Given the asserted misrepresentations in Shau's
23 grandparent and parent patent applications, the court's analysis
24 proceeds in two steps. First, the court assesses whether the
25 misrepresentations meet a threshold level of materiality. Second,
26 the court determines whether the evidence shows a threshold level
27 of intent to mislead the PTO. See Hoffmann-La Roche, 323 F3d at
28 1359. The court then balances materiality and intent: the more

1 material the omission, the less culpable the intent required, and
2 vice versa. See Molins PLC v Textron, 48 F3d 1172, 1178 (Fed Cir
3 1995).

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5 1

6 The materiality standard does not require that a patent
7 examiner actually rely on the representation in issuing the patent.
8 See Merck & Co v Danbury Pharmacal, Inc, 873 F2d 1418, 1421 (Fed
9 Cir 1989) (rejecting a 'but for' standard of materiality).
10 Instead, a representation is "deemed material if there is a
11 substantial likelihood that a reasonable examiner would consider it
12 important in deciding whether to allow the application to issue as
13 a patent." Brasseler, USA I, L P v Stryker Sales Corp, 267 F3d
14 1370, 1380 (Fed Cir 2001). TSMC's materiality theory turns on the
15 statutory requirements of enablement and non-obviousness. The
16 court addresses these two theories of materiality in turn.

17 Enablement requires that the patent applicant describe
18 the claimed invention in sufficient detail such that a person of
19 skill in the art could make and use the invention without undue
20 experimentation. Monsanto Co v Scruggs, 459 F3d 1328, 1337-38 (Fed
21 Cir 2006). Procedurally, the patent examiner bears the initial
22 burden of identifying a defect in the specification and "setting
23 forth a reasonable explanation as to why [the examiner] believes
24 that the scope of protection provided by that claim is not
25 adequately enabled by the description of the invention provided in
26 the specification of the application." In re Wright, 999 F2d 1557,
27 1561-62 (Fed Cir 1993). Then, the burden shifts to the applicant
28 to "provide suitable proof indicating that the specification is

1 indeed enabling." Id.

2 TSMC cites Shau's representation that "commercial memory
3 products were manufactured successfully," arguing that "[a]n
4 enablement rejection would be difficult for an examiner where the
5 applicant has sworn that the invention has been built for
6 commercial production." Doc #271 at 8. Although "the presence or
7 absence of working examples" is one of eight factors in the
8 enablement test set forth in In re Wands, 858 F2d 731, 373 (Fed Cir
9 1998), TSMC fails to explain why a reasonable examiner would
10 consider this factor important in deciding whether to issue Shau's
11 patents.

12 Moreover, by focusing exclusively on Shau's statement in
13 his application, TSMC misconstrues the legal standard. Materiality
14 does not concern the applicant's representation, but rather his
15 misrepresentation. Hence, TSMC must demonstrate that the gap
16 between Shau's statements to the PTO and the reality of his
17 development efforts would be pertinent to a reasonable examiner's
18 decision on patentability. Before filing the '620 application Shau
19 claims (and TSMC concedes) that prototypes had been manufactured,
20 which would presumably constitute "the presence * * * of working
21 examples" for the purpose of enablement. In view of the
22 manufactured prototypes, TSMC fails to explain why adding the term
23 "commercial" would even affect the outcome of an examiner's
24 decision on enablement, much less constitute an "important" factor.

25 The Federal Circuit addressed an analogous theory of
26 materiality in Regents of Univ of Cal v Eli Lilly & Co, 119 F3d
27 1559 (Fed Cir 1997). In Regents, the patent applicant (UC)
28 misstated two examples by representing that the pMB9 plasmid was

1 used as the cloning vector in a working sample when in fact the
2 pBR322 plasmid was used. Id at 1570. In reversing the district
3 court's finding of inequitable conduct, the court noted that there
4 was no allegation of non-enablement. Id at 1570-71. Given the
5 nature of UC's application, the court concluded there was "no
6 reason to believe that a reasonable examiner would have made any
7 different decision if US had framed Examples 4 and 5 as
8 constructive examples * * *. UC's alleged mischaracterization of
9 the pMB9 work as an actual example did not induce the examiner to
10 act, or not to act, in reliance thereon." Id.

11 Given the paucity of evidence supporting a non-enablement
12 charge, the court rejects TSMC's assertion that a reasonable
13 examiner would consider the alleged misrepresentation important in
14 deciding whether the application satisfied the enablement
15 requirement.

16 Alternatively, TSMC contends that a reasonable examiner
17 would have considered important the alleged misstatements in
18 deciding whether to issue an obviousness rejection. Akin to the
19 procedures under enablement, the examiner bears the initial burden
20 with respect to obviousness.

21 During examination, the examiner bears the initial
22 burden of establishing a *prima facie* case of
23 obviousness. The *prima facie* case is a procedural
24 tool, and requires that the examiner initially
25 produce evidence sufficient to support a ruling of
26 obviousness; thereafter the burden shifts to the
27 applicant to come forward with evidence or argument
28 in rebuttal. When rebuttal evidence is provided,
the *prima facie* case dissolves, and the decision is
made on the entirety of the evidence.

In re Kumar, 418 F3d 1361, 1366 (Fed Cir 2005) (internal
citations omitted)

1 Rebuttal evidence may show, for example, that the claimed
2 invention achieved unexpected results relative to the prior art, In
3 re Geisler, 116 F3d 1465, 1469-70 (Fed Cir 1997); that the prior
4 art teaches away from the claimed invention, *id* at 1471; or, as
5 relevant here, that objective evidence (e g, commercial success)
6 supports the conclusion that the invention would not have been
7 obvious to a skilled artisan, In re Piasecki, 745 F2d 1468, 1471
8 (Fed Cir 1984). Yet, pursuant to the burden-shifting regime set
9 out above, rebuttal evidence is pertinent to a reasonable examiner
10 if (1) the examiner has some basis for a prima facie rejection and
11 (2) the rebuttal evidence is of the caliber the examiner could rely
12 upon in withdrawing the prima facie rejection. Here, TSMC does not
13 contend that the examiner had any basis for issuing a prima facie
14 obviousness rejection; hence, the relevance of the invention's
15 commercial success is attenuated at best.

16 The Federal Circuit rebuffed a similar materiality
17 argument in CFMT, Inc v Yieldup Int'l Corp, 349 F3d 1333 (Fed Cir
18 2003). In CFMT, the applicants misrepresented the invention by
19 stating its advantages without disclosing certain data rebutting
20 those advantages (i e, secondary indicia evidence). *Id* at 1341.
21 The court concluded that secondary evidence was not pertinent
22 because no prima facie case of obviousness existed:

23 [T]he examiner concluded that no combination of the
24 prior art, even if supported by a motivation to
25 combine, would disclose all the limitations of the
26 claims. In other words, the examiner detected, in
27 light of all limitations of the claims, no
28 obviousness. Therefore the examiner did not appear
to resort to consideration of secondary
considerations, such as the unexpected results and
advantages in the quoted statements, to surmount
the obviousness objection.

1 Id at 1342 (internal citations omitted). The logic from CFMT
2 applies here because TSMC does not explain why a reasonable
3 examiner would have detected obviousness, a predicate to the
4 examiner's consideration of secondary factors.

5 More detrimental to TSMC's materiality theory is Federal
6 Circuit case law that precludes an examiner from giving weight to
7 statements of the kind Shau included in his application. In In re
8 Huang, 100 F3d 135 (Fed Cir 1996), in response to a prima facie
9 obviousness rejection, the applicant sought to establish commercial
10 success through a declaration asserting that 750,000 products had
11 been sold over a five-month period. Id at 137. The Federal
12 Circuit affirmed the examiner's rejection of this declaration,
13 reasoning that "[a]llthough Huang's affidavit certainly indicates
14 that many units have been sold, it provides no indication * * *
15 whether this represents a substantial quantity in this market." Id
16 at 140. The Huang court further stated that commercial success "is
17 relevant in the obviousness context only if there is proof that the
18 sales were the direct result of the unique characteristics of the
19 claimed invention - as opposed to other economic and commercial
20 factors unrelated to the quality of the patented subject matter."
21 Id.

22 In view of the Federal Circuit's exacting standards for
23 establishing commercial success, the court finds that a reasonable
24 examiner would not - indeed, could not - consider the mere
25 existence of a "commercial" product as evidence of commercial
26 success. Accordingly, Shau's statements in his applications would
27 not be material to a reasonable examiner's decision on obviousness.
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For an inequitable conduct defense to succeed, it is not enough to establish a material false statement to the PTO, a defendant must also establish deceptive intent. Intent to deceive the PTO need not be proven by direct evidence; it is often proven by a showing of acts, the natural consequences of which are presumably intended by the actor. Molins PLC v Textron, 48 F3d 1172, 1180 (Fed Cir 1995). Yet "given the ease with which a relatively routine act of patent prosecution can be portrayed as intended to mislead or deceive, clear and convincing evidence of conduct sufficient to support an inference of culpable intent is required." Northern Telecom, Inc v Datapoint Corp, 908 F2d 931, 939 (Fed Cir 1990). Also, while intent to deceive the PTO may be found as a matter of inference from circumstantial evidence, such evidence must support a finding of intentional deceit; gross negligence does not suffice. Kingsdown, 863 F2d at 876 ("[A] finding that particular conduct amounts to 'gross negligence' does not of itself justify an inference of intent to deceive").

TSMC's intent argument rests on its charge that "Shau claimed [in his deposition] that his patent application was the 'product' he was claiming to have made [in the grandfather application]." Doc #271 at 7. The pertinent deposition testimony is as follows:

TSMC: As of May 24th, 1996, did Telesis have any products at that point in time? I guess that was 24 days into its creation.

Shau: Can you define what is "product?"

TSMC: Are you claiming that you had anything that you would call a product as of May 24th, 1996 at Telesis?

Shau: If patent is - patent application is a product, then I claim that I have a product.

1 Doc #285, Ex A at 212:5-16 (objection omitted)

2 TSMC interprets this passage to mean that the grandparent
3 patent itself was what Shau referred to in the grandparent
4 application as a "product" and "under production." The court
5 disagrees with TSMC's odd interpretation of Shau's testimony.
6 Shau's answer did not relate to his use of the word "product" in
7 the grandparent application. Instead, TSMC's asked whether
8 "anything" constituted a product as of May 24, 1996. Given that
9 Shau was not part of a foundry like TSMC, it is not surprising that
10 Shau considered the patent application to be a product; to circuit
11 designers, intellectual property is the primary "product."

12 In any event, it is telling that this passage - culled
13 from three days of Shau's deposition testimony - constitutes TSMC's
14 best evidence of deceptive intent. Such a showing does not provide
15 the court with clear and convincing evidence of conduct sufficient
16 to support an inference of culpable intent. See Northern Telecom,
17 Inc v Datapoint Corp, 908 F2d 931, 939 (Fed Cir 1990). Drawing all
18 justifiable inferences in favor of UniRAM, Anderson, 477 US at 255,
19 the court finds that TSMC fails to establish that Shau intended to
20 deceive the PTO. Accordingly, TSMC neither establishes the
21 requisite level of materiality nor demonstrates the threshold level
22 of intent for a finding of inequitable conduct.

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IV

In sum, the court concludes that TSMC fails to demonstrate the threshold level of materiality and intent necessary for a finding of inequitable conduct. Accordingly, the court DENIES TSMC's motion for summary judgment that the '229 patent is unenforceable due to inequitable conduct. The court also DENIES UniRAM's motion to strike portions of TSMC's reply brief. The parties shall appear for a further case management conference on May 1, 2007, at 9:00 am, or at such other time as they may arrange with the courtroom deputy, Ms Cora Klein, 415-522-2039.

IT IS SO ORDERED.



VAUGHN R WALKER

United States District Chief Judge